



RMI Company

Niles, Ohio 44446 TEL 216-652-9951 TWX 810-436-2600

EPA Region 5 Records Ctr.



322526

HAROLD G. DEGITZ
Director of Engineering

December 1, 1976

Mr. Steven Gunsel
District Engineer
Ohio Environmental Protection Agency
Northeast District Office
2110 East Aurora Road
Twinsburg, OH 44087

Dear Steve:

Subject: Permission to Install Facilities for
Catalytic Decomposition of Hypochlorite -- Phase II

Please find attached three copies of a document titled, "Phase II -- Catalytic Decomposition of Hypochlorite".

This document describes Phase II of a two-step program which, when completed, will enable RMI Company to reduce the chlorine contamination level from the Sodium Plant to an acceptable level before discharging to a State stream.

May we have your approval to install these facilities as outlined. As you will note from the report, acquisition of equipment has already begun and a prompt reply will be appreciated.

Very truly yours,

A handwritten signature in dark ink, appearing to read "H. G. Degitz", written over a printed name and title.

H. G. Degitz
Director of Engineering

HGD/ds

Attachments (3)

File

Document II

Phase II

Catalytic Decomposition of Hypochlorite

RMI Company
Sodium Plant
Ashtabula, Ohio

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DEC 3 1976
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PROTECTION AGENCY
N. E. D. O.

Phase II

Catalytic Decomposition of Hypochlorite

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RMI Company
Sodium Plant
Ashtabula, Ohio

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TWA:hm

Phase II

General Information Sheet for Plan Approval

The RMI Company, with mailing address at 1000 Warren Ave., Niles, OH 44446, herewith requests approval of the attached plans for an industrial wastewater treatment facility to be installed and operated at RMI Co. Sodium Plant, Ashtabula, OH. These plans were prepared by T. W. Andersen, Chief Engineer, for the RMI Company, Ashtabula, and whose telephone number is (216) 997-5141.

The over-all objective is to reduce residual chlorine levels in process wastes before they join the final plant effluent. This is Phase II of a program to comply with Federal and State regulations regarding allowable chlorine levels in the final effluent. Phase I (chlorine recovery) is under construction and will be completed August, 1977. Specific objectives are given in the report.

Status of this project is as follows: Pilot operations and evaluation completed. Engineering work to begin January, 1977. Estimated completion - January, 1978. The estimated cost of the proposed facility is \$168,000.

By H. G. Degitz
H. G. Degitz
Title Director of Engineering
Date December 1, 1976

Exhibit "A"

Catalytic Decomposition of Hypochlorite - Phase II

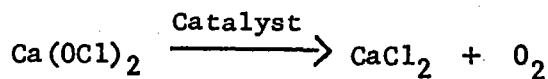
General Conditions

The RMI Company Sodium Plant at Ashtabula, Ohio, produces metallic sodium and chlorine by the electrolysis of sodium chloride (NaCl), using the Downs process. Waste chlorine gas is generated as "off-gas" and "sniff" and "tail" gas. "Off-gas" results from chlorine escaping from the cells when maintenance operations are being performed or are not working properly. A capture system collects this gas together with a large volume of air, dust, and miscellaneous impurities, which make it impractical to recover in a pure enough state to be economical. This stream is directed to a neutralization system for disposal. "Tail gas" from the liquefaction system, and "sniff gas" from empty tank cars recovered by the Phase I Chlorine Recovery System will reduce the total waste chlorine loading by about 50 percent. Wastes from Phase I are directed to the neutralization system for disposal.

Neutralization wastes containing hypochlorite are collected in a holding lagoon. These wastes are to be treated catalytically under the Phase II catalytic process to reduce chlorine values of this material to about 200 PPM or less. The treated stream then enters the settling and decomposition lagoon system where additional hypochlorite reduction is made by photo-chemical decomposition, before the stream joins the main plant sewer. RMI Company requests approval to install the equipment and facilities shown on the attached flow diagram, Exhibit "D."

Process Description

Chlorine residual (as calcium hypochlorite) in plant wastes is to be removed by this process according to the reaction equation:



As shown on Exhibit "D," chlorine-bearing wastes are collected in settling ponds SP-1 A and B. Pumps P-1 A or B, controlled by FRC, transfer continuously a stream from the pond to reactor R-1, a heated and agitated vessel, which contains cobalt-hydroxide as a catalyst in suspension. Temperature and pH are automatically controlled, and recycle catalyst is received from settler S-1. Nascent oxygen is released as in the above reaction. The effluent, containing some suspended catalyst, flows by gravity to reactor R-2, an agitated vessel, for additional retention time to assure complete reaction.

Process Description (Continued)

Effluent from R-2 flows to settler S-1 with the addition of a flocculating agent from tank D-2. Catalyst particles are efficiently collected in settler S-1 and returned to reactor R-1 as a recycle stream. Treated and clarified effluent from settler S-1 flows by gravity to surge tank D-1 and subsequently to the tertiary settling pond in a five-pond system.

Basic Design

The equipment is designed to provide sufficient capacity to handle all the hypochlorite wastes generated in the plant, including any period that the Phase I recovery system may be inoperative because of maintenance problems.

Facility Location

Exhibit "B" (attached) is a plant plot plan showing the location of the new facility. Also attached is Exhibit "E" showing the proposed layout of the equipment covered by this application.

Construction Schedule

The following is the projected time schedule for the completion of the project.

Engineering	<u>Start</u> January, 1977	<u>Complete</u> April, 1977
Major Equipment	<u>Order Date</u>	<u>Expected Delivery</u>
Long delivery items	May, 1977	September, 1977
Normal delivery items	July, 1977	September, 1977
Installation	<u>Start</u>	<u>Complete</u>
Foundations	July, 1977	August, 1977
Building	August, 1977	September, 1977
Equipment	September, 1977	November, 1977
Trial Operation	December, 1977	January, 1978
Unit on Line	January, 1978	